

**SUPPLEMENTAL DECLARATION UNDER 37 C.F.R. § 1.132**

**By: Ping-Lin Kuo**

S/N 10/820,345

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

|             |   |                 |              |
|-------------|---|-----------------|--------------|
| Applicant:  | KUO ET AL.  | Examiner:       | P. HAILEY    |
| Serial No.: | 10/820,345  | Group Art Unit: | 1793         |
| Filed:      | APRIL 7, 2004   | Docket No.:     | 8688.339US01 |
| Title:      | COMPONENTS AND METHOD FOR SURFACE TREATMENT OF PIGMENTS |                 |              |

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DECLARATION UNDER 37 C.F.R. §1.132

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

I, Ping-Lin Kuo, declare as follows:

1. I am one of the co-inventors of the invention claimed in the above-identified patent application.
2. I am a professor in the Department of Chemical Engineering of National Cheng Kung University.
3. I have reviewed, and understand, U.S. Patent 3,326,827 ("*Mullin*").
4. As a highly volatilizing solvent and a good drying agent, acetone would immediately vaporize in ambient atmosphere so that dried epoxide-treated  $\text{TiO}_2$  can be straightforwardly and quickly obtained without heating.
5. In fact, acetone, which is commonly used as a solvent, would impose hazard to the user because of its extreme flammability. For example, as acetone's flash point is  $-20^\circ\text{C}$ , an air mixtures of between 2.5% to 12.8% acetone by volume may explode or cause fire if the temperature is higher than  $-20^\circ\text{C}$ . See, for example, the article "Acetone" of Wikipedia under the section "Safety" (<http://en.wikipedia.org/wiki/Acetone>, as accessed on 22 January 2009).

Therefore, any skilled person in the art would take caution not to use any heating means if he intends to use acetone as a solvent for the mixture.

6. As acetone is used as a solvent for the surface-treatment of pigment, the slurry of pigment in acetone containing additive for treatment is usually milled to well disperse the pigment, and the acetone is dried during milling. In order to illustrate this phenomenon, I conducted an experiment like in the *Mullin* patent recently as follows: 150 grams of  $\text{TiO}_2$  was added into 400 c.c. of acetone containing 1.5g linseed oil. As this mixture was milled, the acetone spontaneously vaporized (volatilized) and the mixture became paste and then dried into powders during milling without heating. The temperature of the mill remained unchanged at room temperature,  $24^\circ\text{C}$ , during milling. In Mullin patent (column 4, line 20), the mixture was dried/milled, and nothing indicates the mixture was heated or was dried under elevated temperature.

7. I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Name: Ping-Lin Kuo

Signature:

Date:

PL Kuo  
2/9/2009